Beam Position
&
How To Get It To L2 / L3

STT Meeting

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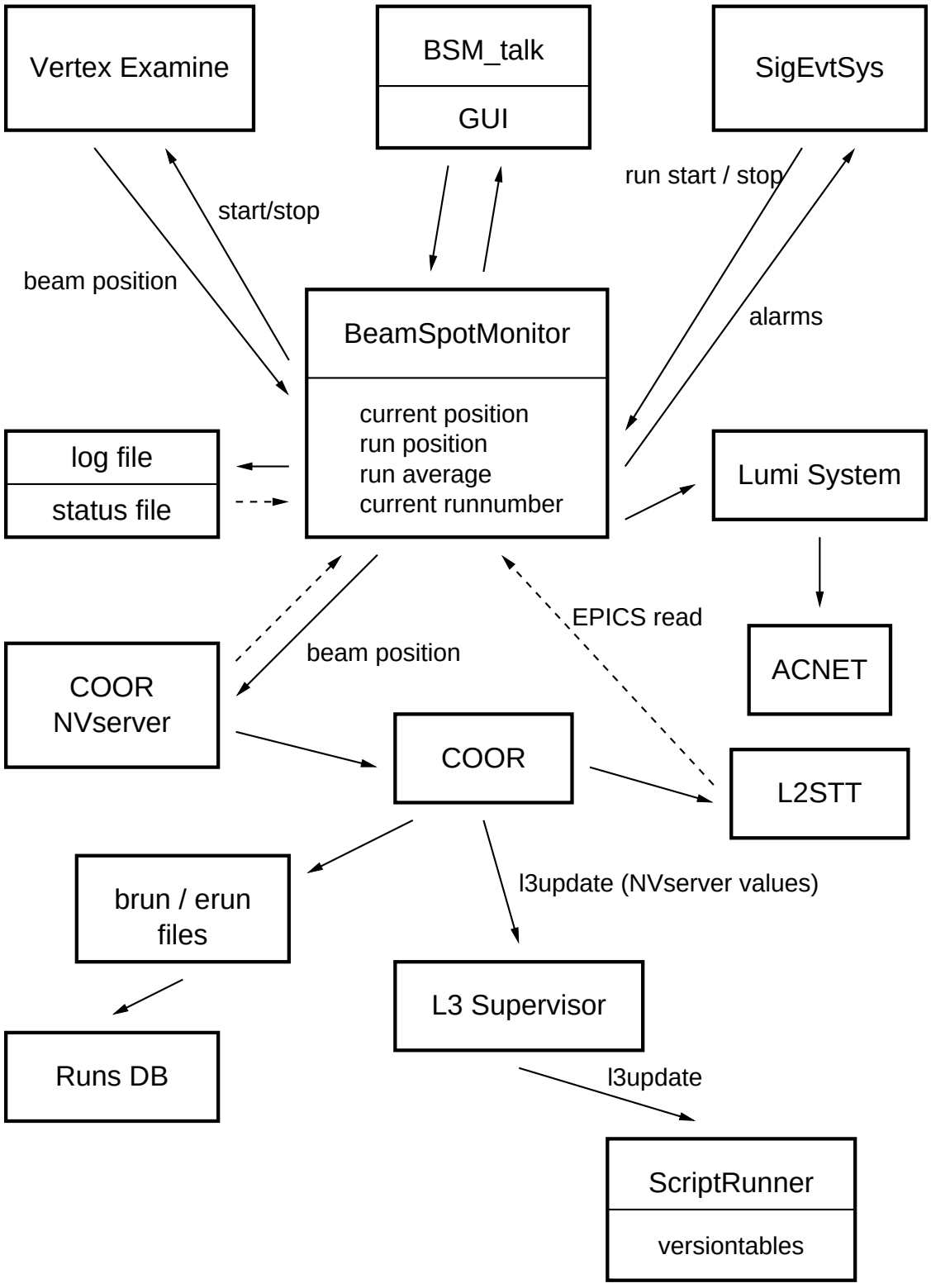
Beam Spot Monitor

- Tasks of `BeamSpotMonitor`:
  - Get real time beam position from `vertex_examine`
  - Make sure values are within limits
  - Make parameters available to L2 / L3
  - Send parameters on to Lumi system $\rightarrow$ Lumi DB & ACNET
  - Save values at start/end of run for offline use (`trigsim`)
  - Save run average value (& RMS) for offline use

- Beam position parameters:
  - x, y at $z = 0$, tilt in xz and yz planes
  - Position at the centre of each SMT barrel (?)
  - Average vertex z position
  - Average number of vertices per event
  - Beam width (longer term)

Beam Spot Monitor



Technical Details / Current Status

- `BeamSpotMonitor` and helpers are being written
- Coor Name/Value Service is available
- Coor command `l3update` is available:

```
<l3update name="l3beamposition">
  <l3parm name="x" value="$l3_beam_pos.x"/>
  <l3parm name="y" value="$l3_beam_pos.y"/>
</l3update>
```

- L3 Supervisor ready to process `l3update` command
- `ScriptRunner` almost ready to process `l3update` command; storage tool is in place (`NameValueTable`)
- L3 tools almost ready: naming convention?
- L2STT?

Offline

- Work ongoing to use `NameValueTable` in `trigsim`, read information from Runs DB / text file

- DataBases:
  - Rungrabber will store beam position in Runs DB as soon as `BeamSpotMonitor` writes them to Coor NVserver, in an 'optional' column
  - Do we want a separate table in Runs DB?
  - Lumi DB: discussion ongoing on what to save, if anything at all
  - How do we want to access info from Lumi DB?

Other Topics

- Do we want to store beam position per barrel to Runs DB?
- Status of EPICS downloads? Trigger configuration?
- From MC sample with 300 μrad tilt:
  - `vertex_examine` finds beam position at $(0, 0)$, beam tilt slightly off
  - Many possible causes: geometry, magnetic field, ...
  - Don't understand beam width